199 Development and characterization of IgY as oral treatment in CF care

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Antibiotic resistance is emerging and alternatives to antibiotics are urgently needed. The chicken antibody (IgY) has promising potential for the prevention of bacterial and viral infections. Specific antibodies are obtained by immunization of hens, which produce antibodies against the antigen of interest. The IgY antibodies are transferred to the egg yolk in high amount. The antibodies can then be purified from the egg yolk by a water dilution method. Analysis with 1D- and 2D-gels showed that the reproducibility of the method is very high. Further, we have identified 22 proteins besides IgY with NanoLC-MALDI-TOF/TOF MS. We have earlier reported the prophylactic effect of anti-pseudomonas IgY treatment of CF patients. IgY has potential as treatment against other CF pathogens, both bacteria and fungi. We are currently evolving an anti-candida formulation that contains four different types of candida species. Today the patients gargle with an IgY solution that has to be stored frozen until use. We have begun to develop tablets possible to store in room temperature, which would be more convenient. The tablets have the same IgY activity as the solution. There is no risk for resistance against IgY and it is comparable to eating eggs. During around 130 patient-years of anti-pseudomonas IgY treatment in our studies there have been no adverse events. The risk that IgY intake would affect the serum level of cholesterol and triglycerides is extremely small as the levels in water dilution purified IgY-solutions are very low. In an ongoing study the serum levels are investigated as well as renal and inflammatory markers in healthy subjects receiving IgY. In conclusion, IgY immunotherapy is a promising complement to antibiotics in CF care.

200 Antimicrobial potential of marine psychrotrophic bacteria isolated from Antarctic sponges

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In the last decades, both the increasing global resistance to existing antibiotics and the dearth of new classes of discovered molecules have become a public health problem. In attempts to overcome it, research efforts are now addressed to unusual sources, such as microbes from extreme environments. In this context, the aim of the present work was to establish the potential of sponge-derived Antarctic bacteria to inhibit the growth of microorganisms of terrestrial origin and/or pathogenic for man.

Isolates from the Antarctic sponges *Anoxycalyx* spp., *Lissodendoryx* spp., *Haliclonissa* spp. and *Tedania* spp. were screened for antimicrobial activity by the cross-streak method. Antarctic isolates were also identified by 16S rDNA sequencing and characterized by classical methods.

About 25% of Antarctic strains showed antagonistic activity against at least one of the target strains. *E. coli* resulted as the most inhibited, followed by *S. aureus*, *Proteus mirabilis* and *Bacillus subtilis*. Finally, *Micrococcus luteus*, *P. aeruginosa* and *Salmonella enterica* resulted as the most resistant indicator organisms. Some isolates were able to inhibit the growth of targets belonging to the genus *Burkholderia*. Active isolates mainly belonged to the γ-Proteobacteria and the Actinobacteria. Results obtained from the present study highlight the potential exploitation of cold-adapted bacteria as a new source of antibiotics of pharmaceutical interest. Nevertheless, further investigation are needed in order to clarify the nature of the inhibitory activities observed which could be linked to the synthesis of antimicrobial compounds, as well as to alterations of the culture medium features.